



Attorney Docket No.: PATENT
COOL-00800

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)	Group Art Unit: 3753
Girish Upadhyia et al.)	Examiner:
Serial No.: 10/698,180)	<u>TRANSMITTAL LETTER</u>
Filed: October 30, 2003)	162 N. Wolfe Road
For: OPTIMAL SPREADER SYSTEM,)	Sunnyvale, CA 94086
DEVICE AND METHOD FOR)	(408) 530-9700
FLUID COOLED MICRO-SCALED)	Customer No.: 28960
HEAT EXCHANGE)	

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

Sir:

Enclosed please find an Information Disclosure Statement and Form PTO-1449, including copies of the references contained thereon, for filing in the U.S. Patent and Trademark Office.

You will also find enclosed the associated Transmittals, Electronic Information Disclosure Statements, and United States Patent and Trademark Office Acknowledgment Receipts for the electronically filed Information Disclosure Statement (EFS ID #57478); (EFS ID #57479); (EFS ID #57481); and (EFS ID #57483) filed on March 19, 2004.

The Commissioner is hereby authorized to charge any additional fee or credit overpayment to our Deposit Account No. 08-1275. **An originally executed duplicate of this transmittal is enclosed for this purpose.**

Respectfully submitted,
HAVERSTOCK & OWENS LLP

Dated: 3/19/04

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CERTIFICATE OF MAILING (37 CFR § 1.8(a))

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For: **OPTIMAL SPREADER SYSTEM,
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) Examiner:

) **INFORMATION DISCLOSURE**
) **STATEMENT**

) 162 N. Wolfe Road
) Sunnyvale, CA 94086
) (408) 530-9700

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Sir:

The citations listed below, copies attached, may be material to the examination of the above-identified application, and are therefore submitted in compliance with the duty of disclosure defined in 37 C.F.R. §§ 1.56 and 1.97. The Examiner is requested to make these citations of official record in this application.

United States Patents or Published Patent Applications have been filed electronically (EFS ID #57478); (EFS ID #57479); (EFS ID #57481); and (EFS ID #57483). Applicants have become aware of the following printed publication which may be material to the examination of this application:

- Chinese Publication No. CN 97212126.9;
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Respectfully submitted,
HAVERSTOCK & OWENS LLP

Dated: 3-19-04

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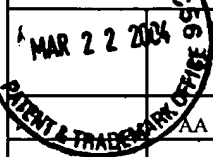
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FORM PTO-1449 (Modified)		U.S. Department of Commerce Patent and Trademark Office		Attorney Docket No.: COOL-00800	Serial No.: 10/698,180
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use Several Sheets If Necessary)				Applicants: Girish Upadhy et al.	
(37 CFR § 1.98(h))				Filing Date: October 30, 2003	Group Art Unit: 3753
OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication)					
	EH	George M. Harpole et al., <u>MICRO-CHANNEL HEAT EXCHANGER OPTIMIZATION</u> , 1991, Seventh IEEE SEMI-THERM Symposium, pages 59-63.			
	EI	Pei-Xue Jiang et al., <u>Thermal-hydraulic performance of small scale micro-channel and prous-media heat-exchangers</u> , 2001, International Journal of Heat and Mass Transfer 44 (2001), pages 1039-1051.			
	EJ	X.N. Jiang et al., <u>Laminar Flow Through Microchannels Used for Microscale Cooling Systems</u> , 1997, IEEE/CPMT Electronic Packaging Technology Conference, pages 119-122, Singapore.			
	EK	David Bazeley Tuckerman, <u>Heat-Transfer Microstructures for Integrated Circuits</u> , February 1984, pages ii-xix, pages 1-141.			
	EL	M Esashi, <u>Silicon micromachining for integrated microsystems</u> , 1996, Vacuum/volume 47/numbers 6-8/pages 469-474.			
	EM	T.S. Ravigururajan et al., <u>Effects of Heat Flux on Two-Phase Flow characteristics of Refrigerant Flows in a Micro-Channel Heat Exchanger</u> , HTD-Vol. 329, National Heat Transfer Conference, Volume 7, ASME 1996, pages 167-178.			
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	EO	T.S. Ravigururajan et al., <u>Liquid Flow Characteristics in a Diamond-Pattern Micro-Heat-Exchanger</u> , DSC-Vol. 59 Microelectromechanical Systems (MEMS), ASME 1996, pages 159-166			
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	EQ	J. Pfahler et al., <u>Liquid Transport in Micron and Submicron Channels</u> , March 1990, Sensors and Actuators, A21-A23 (1990), pages 431-434.			
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	EY	L.J. Missaggia et al., <u>Microchannel Heat Sinks for Two-Dimensional High-Power-Density Diode Laser Arrays</u> , 1989, IEEE Journal of Quantum Electronics, Vol. 25, No. 9, September 1989, pages 1989-1992.			
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	FF	D. Jed Harrison et al., <u>Electroosmotic Pumping Within A Chemical Sensor System Integrated on Silicon</u> , Session C9 Chemical Sensors and Systems for Liquids, June 26, 1991, pages 792-795.			
	FG	Kurt Seller et al., <u>Electroosmotic Pumping and Valveless Control of Fluid Flow within a Manifold of Capillaries on a Glass Chip</u> , 1994, Analytical Chemistry, Vol. 66, No. 20, October 15, 1994, pages 3485-3491.			
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(37 CFR § 1.98(b))

Filing Date: October 30, 2003

Group Art Unit: 3753

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FO	Susan L. R. Barker et al., <u>Fabrication, Derivatization and Applications of Plastic Microfluidic Devices</u> , Proceedings of SPIE, Vol. 4205, November 5-8, 2000, pages 112-118.
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FS	H. A. Goodman, <u>Data Processor Cooling With Connection To Maintain Flow Through Standby Pump</u> , December 1983, IBM Technical Disclosure Bulletin, Vol. 26, No. 7A, page 3325.
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FX	J. G. Sunderland, <u>Electrokinetic dewatering and thickening. I. Introduction and historical review of electrokinetic applications</u> , September 1987, Journal of Applied Electrochemistry Vol. 17, No. 5, pages 889-898.
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GK	Kambiz Vafai et al., <u>Analysis of two-layered micro-channel heat sink concept in electronic cooling</u> , 1999, Int. J. Heat Mass Transfer, 42 (1999), pages 2287-2297.

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Applicants: Girish Upadhyaya et al.

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GL	Gokturk Tune et al., <u>Heat transfer in rectangular microchannels</u> , 2002, Int. J. Heat Mass Transfer, 45 (2002), pages 765-773.
GM	D. B. Tuckerman et al., <u>High-Performance Heat Sinking for VLSI</u> , 1981, IEEE Electron Device Letters, Vol. EDL-2, No. 5, pages 126-129.
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GP	S. Sasaki et al., <u>Optimal Structure for Microgrooved Cooling Fin for High-Power LSI Devices</u> , Electronic Letters, December 4, 1986, Vol 22, No. 25.
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ACKNOWLEDGEMENT RECEIPT**

Electronic Version 1.1

Stylesheet Version v1.1.1

Title of Invention	OPTIMAL SPREADER SYSTEM, DEVICE AND METHOD FOR FLUID COOLED MICRO-SCALED HEAT EXCHANGE										
Submission Type:	Information Disclosure Statement										
Application Number:	10/698180	*10/698180*									
EFS ID:	57478										
Server Response:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Confirmation Code</th> <th>Message</th> </tr> </thead> <tbody> <tr> <td>ISVR1</td> <td>Submission was successfully submitted - Even if Informational or Warning Messages appear below, please do not resubmit this application</td> </tr> <tr> <td>ICON1</td> <td>9903</td> </tr> <tr> <td>ISYS5</td> <td>Filename= N/A BusinessRule= Validation System/Function Call Information. #Supporting Msg:Server unable to validate the Confirmaton/Application numbers at this time. They will be checked by PTO personnel later.</td> </tr> </tbody> </table>			Confirmation Code	Message	ISVR1	Submission was successfully submitted - Even if Informational or Warning Messages appear below, please do not resubmit this application	ICON1	9903	ISYS5	Filename= N/A BusinessRule= Validation System/Function Call Information. #Supporting Msg:Server unable to validate the Confirmaton/Application numbers at this time. They will be checked by PTO personnel later.
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First Named Applicant:	Girish Upadhya										
Attorney Docket Number:											
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Page 2 of 2

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TRANSMITTAL							
Electronic Version v1.1 Stylesheet Version v1.1.0							
Title of Invention	OPTIMAL SPREADER SYSTEM, DEVICE AND METHOD FOR FLUID COOLED MICRO-SCALED HEAT EXCHANGE						
Application Number:	10/698180 *10/698180*						
Date:	2003-10-30						
First Named Applicant:	Girish Upadhyia						
Confirmation Number:	9903						
Attorney Docket Number:							
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<table border="1"><thead><tr><th>Submitted by:</th><th>Elec. Sign.</th><th>Sign. Capacity</th></tr></thead><tbody><tr><td>Thomas B. Haverstock Registered Number: 32571</td><td>/tbh/</td><td>Attorney</td></tr></tbody></table>		Submitted by:	Elec. Sign.	Sign. Capacity	Thomas B. Haverstock Registered Number: 32571	/tbh/	Attorney
Submitted by:	Elec. Sign.	Sign. Capacity					
Thomas B. Haverstock Registered Number: 32571	/tbh/	Attorney					

Documents being submitted	Files
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ELECTRONIC INFORMATION DISCLOSURE STATEMENT

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Title of Invention	OPTIMAL SPREADER SYSTEM, DEVICE AND METHOD FOR FLUID COOLED MICRO-SCALED HEAT EXCHANGE						
Application Number:	10/698180	*10/698180*					
Confirmation Number:	9903						
First Named Applicant:	Garish Upadhyaya						
Attorney Docket Number:							
Search string:	(3654988 or 3817321 or 3823572 or 3923426 or 3929154 or 4109707 or 4194559 or 4248295 or 4312012 or 4450472 or 4485429 or 4516632 or 4561040 or 4567505 or 4573067 or 4664181 or 4866570 or 4868712 or 4894709 or 4896719 or 4908112 or 4938280 or 5009760 or 5016138 or 5057908 or 5058627 or 5070040 or 5083194 or 5088005 or 5096388 or 5099311 or 5099910 or 5125451 or 5131233 or 5203401 or 5218515 or 5219278 or 5232047 or 5239200 or 5263251 or 5274920 or 5309319 or 5317805 or 5325265 or 5336062 or 5380956 or 5383340 or 5427174 or 5436793 or 5459099).pn.						
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Note: Applicant is not required to submit a paper copy of cited US Patent Documents							
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